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**ISSUES IN MEDICATION COMPLIANCE AMONG CHILDREN AND FAMILIES
AFFECTED BY ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)**

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The use of medication therapy for the treatment of ADHD in children has been cited as the most frequent course of treatment for children diagnosed with this condition with an estimated 3% of school-aged children being prescribed stimulant medication (Kirk, 1999). One issue that is frequently cited when using medication to treat this condition is that of medication compliance. Medication compliance is defined as the actual dosing history with the prescribed drug regimen (Urquhardt, 1994). This paper examines factors that affect the challenges associated with medication compliance among children and families affected by ADHD and the implications that medication compliance has on the educational outcomes experienced by children diagnosed with this condition.

Attention deficit hyperactivity disorder (ADHD) is a disorder in which an individual's ability to regulate attention and activity is impaired. In the US, ADHD has been a common diagnosis among school-aged children with prevalence estimated as high as 3%-5% (American Psychiatric Association, 2000). One of the most frequently cited forms of treatment for this disorder has been the use of stimulant medication with estimates of nearly 3% of the school-aged population (Safer, Zito, & Fine, 1996). Due to the increase in ADHD diagnoses, ongoing research has focused on the effects of stimulant medications and the impact of the disorder upon the child and family regarding medication compliance.

Barlow and Durand (2005) reported an estimated 10 million children were treated with stimulant medications. The US has the highest population of children diagnosed with ADHD with the prescription of Ritalin increasing by 500% from 1990 to 1998 (Dunne, 2000). The medications included the most commonly prescribed Ritalin, Dexedrine, Adderall, and Cylert. Cylert has received reviews of having a high probability of negative side effects, so its popularity has waned. Adderall offered the advantages of reduced multiple daily doses while maintaining positive effects throughout the school day. An antidepressant, Strattera, has proven effective for some children with ADHD, and some high blood pressure medication may have similar results. Overall, stimulant medications posed potential negative side effects such as insomnia, drowsiness, irritability, loss of appetite, chest pains, liver damage, uncontrollable body twitches

and verbalizations, and growth suppression (Halgin & Whitbourne, 2003) as well as an increased risk for substance abuse (Barlow & Durand, 2005).

Treatment Outcomes.

The purpose of administering stimulant medication for children with ADHD was to reduce the child's impulsive and hyperactive behavior (usually behavior described as disruptive in the classroom) and to improve children's attention skills. According to outcome research noted by Halgin and Whitbourne (2003), Ritalin reportedly was not only successful in improving attention and impulse control, but also in academic productivity. Contrarily, Barlow and Durand (2005) stated that although all of the medications seemed to provide compliance and decrease undesired behaviors in many children, substantial improvement in learning and academic performance was lacking. Further, indifferent to a child or an adult, with or without ADHD, people overall experience a calming effect after taking a low dose of a stimulant medication and can readily focus attention during problem-solving tasks (Barlow & Durand, 2005). It has been hypothesized that children who felt more in control of themselves tended to be happier, academically productive, and behaved in more socially appropriate ways. However, current research to support this hypothesis when applied to children whether taking or not taking medication was lacking.

Due to the ambiguity of the overall treatment benefits for children, arguments have been made across professions that Ritalin was primarily desired in order to control the child's behavior in the classroom. Even with the contradiction in academic performance and the medications' negative side effects, the trend in the decision to prescribe the medication for children was due to the potential benefits of improved attention and decreased hyperactive behavior. Although ADHD does not represent a disability category recognized under the IDEA (Individuals with Disabilities Education Act) it was believed that more than half of these children were served within special education settings (Reid & Maag, 1998). Many of these children were served as a result of co-occurring conditions such as emotional behavior disorders and/or learning disabilities. It was not uncommon for children diagnosed with ADHD to struggle within the classroom as research indicated that these children typically scored lower than same-age classmates on standardized assessments and more than half required remedial assistance within academic areas (Barkley, 1998). Therefore, it was vital that reliable assessment and diagnosis ensued for these children so appropriate treatments could be implemented. For those children who were diagnosed with ADHD and for whom medication was deemed an appropriate component of the treatment package, medication compliance was essential coupled with the use of positive behavior supports and effective communication across home, school, and medical treatment team members.

For such a medical treatment team to have success, all members would need to have a common understanding of the dynamics of ADHD. In a study to explore the perception of normal behavior of young male preschool children, Gimpel and Kuhn (2000), found that 30% of mothers of preschool children unknowingly endorsed a criteria of ADHD (*is on the go or acts as if driven by a motor*) when describing their child. A further study (Boyle, 1996) was conducted to compare the perceptions of parents and teachers' evaluation of children's behavior with descriptors of *fidgets, cannot stay seated when required to do so, talks excessively, does not seem to listen*, etc. The results of the study revealed that the similarity of perceptions or the consensus between the teachers and parents were quite low for all categories. From a cultural perspective, other countries viewed the energetic behavior as a natural part of childhood, and believed that children grew out of the behavior as they proceeded through developmental phases. Therefore, immigrants would not be as concerned with the management of their child's behavior in the classroom (Dunne, 2000). It appeared parents and teachers' perception were not congruent regarding children who suffered from ADHD, and thus, obstacles to a successful multidisciplinary team approach to effectively assist the child were evident.

Medication Compliance.

Although stimulant medication prescriptions have increased, *reported rates of noncompliance to the medication ranged from 20 percent to as high as 70 percent*, (Halgin & Whitmore, 2003, p. 385). It was suggested that parents could attempt to correct for the negative side effects experienced by their child and administered the dosage as they deemed necessary. In addition, school policies have mandated the brands of medication that may be dispensed on school property and the individual who would be responsible for administration. For medications that need to be administered more than once throughout the school day, some school districts have left the responsibility to the parents to come to the school grounds to administer the medication to their child. Other problematic issues with medication follow:

- As noted earlier, the side effects of the medication such as liver damage, insomnia, appetite loss, chest pains, stunts growth, seizures and tics can result in more harm. Sadly, there was a web site dedicated to a deceased child whose demise was allegedly from the side effects of Ritalin.
- Stimulant medication was to be administered on a temporary basis...how long was considered *temporary*?
- Medication has been sold/bartered illegally by parents.
- Financial and time expense of medication and counseling.
- Medication to calm ADHD children was found totally by accident; the researchers were trying to find a cure for headaches. This happenstance may have produced a cautionary stance with parents.
- The potential for substance addiction does exist, not only with Ritalin, but for additional substances as well.
- Medication does not improve long-term success; it simply makes children more manageable. Therefore, there is currently a lack of consensus among professionals that medication is the most helpful treatment.

In an ideal world, school personnel, clinicians, and parents would be eager to assist the growing development of a child. Although the partnerships among the parents, school, and clinicians were imperative, reality portrayed different scenarios. School personnel often remarked about the difficulty of engaging parents or the uncooperativeness of parents. Whenever individuals were confronted with the need (or opportunity) to make a change, internal and external challenges existed. Internally, families already have a system or organization in which each member knew their role in their family. The philosophy reflected, *We're comfortable with our routine because our relationships were predictable, What we're doing as a family has been working for us in some way, and Nearly any change involved risk and effort, and there was no guarantee the change would be better.* Externally, when a person or family made a change, everyone else within their sphere of influence would need to change as well. Because they were affected by the same internal resistances to change as the family, there was a tendency to resist and maintain the status quo (Fecht, 2001). Depending on the internal and external resistances, parents could refrain from monitoring medical compliance due to any of the following reasons:

- Inadequate understanding/education. Most clinicians in the field were aware that some people would have difficulty comprehending the scope of the disorder when provided with verbal instructions or education. People often have far more difficulty remembering and understanding when they are in a higher anxiety state (Glascoe, Oberklaid, Dworkin, & Trimm, 1998). In addition, parents may have experienced the sense of inadequacy or the inhibition to ask questions. Oftentimes, clients have said to this writer, *there's so much, I don't even know what to ask.*

- Parents failed to see a relationship between what occurred in therapy, at home, at school, and the goals. This failure may be due to the presentation of the relationship in a language that the parents' understood or the family's expectations did not match the expectation of the school or of the clinician.
- Therapy fatigue. Therapy consisted of individual and family counseling which was usually 10 sessions plus follow-ups. In our quick-fix society, family members could become tired of the *intrusion* upon them, and with the overall impression that the family was not normal. Therapy fatigue could also result from the challenge of working with multiple systems of the clinician and the school.
- Problematic past counseling: Family members may have had previous experiences with other institutions in the past that have left a negative impression.
- Parent Training Workshops. Part of counseling consisted of taking *parent training* workshops in which the nomenclature has proven offensive.
- The impact of the duration of a long wait time between the initial contact and first appointment could have reduced the family's motivation to follow through with counseling. In addition, even if the family was initially willing to go to a particular agency because of hearing positive comments from other parents, they may be referred to a different agency.
- Fines. Oftentimes, if a cancellation was not made within a 24-hour advanced notice, a penalty fee or fine was charged.
- Impairment on the child's self-concept. *No one likes me. I have to take pills.* The child's oppositional nature could make the administration of the medication too difficult resulting in a missed dose (Fecht, 2001).

Some issues that inadvertently promoted noncompliance were the parents' denial of their child's problem due to stigmatization, the parents' own mental health, and conflicts with authority figures. Research revealed that when a child has a diagnosable disorder, there was a significant probability that the child would also develop social problems and other psychological disorders before reaching adulthood (Barlow & Durand, 2005; Halgin & Whitmore, 2003). Any mental illness or disability could stigmatize parents with guilt, fear, or embarrassment in which an inner dialog of *I have a bad kid...I am a bad parent*, or *You're not normal*, reflected a fragile self-image. Parents, especially mothers who have a tendency to subscribe to perfectionistic tendencies, were usually impacted the most by stigmatization. In addition, the potential exposure of family *secrets* may be too great of a risk.

Some parents could have been too consumed with their own mental health issues, and have either not sought or complied with treatment for themselves. Therefore, the health of the child was attended to equally or with less effort than the parents. In addition, parents in this category often viewed their child's behavior as normal. For example, although the cause of ADHD was still unknown, current research supported an abnormality in the genes of dopamine receptors and chromosome 20. The D4 receptor that was related to novelty seeking behavior was found more abundantly in ADHD children. If one or both parents had these genes, and thus, ADHD behavior, then the behavior exhibited by their child could be perceived as normal to them. Barlow and Durand (2005) supported that many children with ADHD were raised in a disturbed family environment. It was formerly believed that children eventually grew out of ADHD upon adulthood, but there was enough statistically significant evidence of adults who have ADHD to refute that belief. This, in turn, leads a concern for medication compliance...who controls the meds for whom?

Another variable was that some parents may have had problems with authority, specifically with school and mental health figures. Since their own experience as a child could influence their

perspective, parents may have little trust for school personnel, and in turn, would blame the teacher or school counselor for the child's *bad* behavior (Fecht, 2001). The reverse situation applies as well; having a lack of optimism and collaborative effort on the part of the school personnel would negatively influence parents' reception. Parents may respond with: *I don't see a problem. If you are bothered by it, it must be your problem, and, So? All kids act like that. The kid will grow out of it.* In regards to mental health issue of ADHD, there other conditions which appeared similar to or co-existed with ADHD such as mood disorders, anxiety disorders, and learning disorders; this could have translated into reduced trust due to the possibility of a dual diagnosis or co-morbidity. To the mental health provider, a parent may respond with: *You're saying this behavior could also be something else besides ADHD. You can't guarantee with 100% accuracy what exactly my child has or its cause, but you think you can treat it. You people just want my money.*

In conclusion, there is no doubt that children who suffer from disorders struggle, as well as their families and school mates. Outcome research confirmed that stimulant medication reduced undesired behaviors, but the potential for academic productivity was still questionable. This impasse has inadvertently painted an unwanted picture that children in the US were medicated for classroom management purposes. Given the difficulty of differential diagnosis, the negative side effects of stimulant medication, and unreliable medication compliance, further long-term research is needed. Once conclusive evidence has been achieved, the appropriate treatments coupled with the use of positive behavior supports and effective communication across home, school, and medical treatment team members could provide the avenue to healthy future generations.

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